

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

DRAFT

Title V/ Synthetic Minor / Construction / Operating

Permit: V-07-027

Princeton Peaking Plant

Princeton, KY 42445

August 14, 2007

Esmail Hassanpour, Reviewer

SOURCE ID: 21-033-00038

AGENCY INTEREST: 85174

ACTIVITY: APE20070001

SOURCE DESCRIPTION:

The Princeton Peaking Plant applied to the Kentucky Division for Air Quality on May 5, 2007, to construct and operate an electric generating facility in Princeton, KY. Additional information was provided to the Division on August 20, 2007. The electricity will be generated using nine Caterpillar Model 3516 B reciprocating engines, or similar equipment. The engines will be used to meet peak electricity demand. The reciprocating engines offer quick-start capability and will drive generators to produce electric power for distribution. Each engine will have an approximate heat input of 21.74 MMBtu/hr (HHV) with nominal output of 2 MW. The units use No. 2 fuel oil. Combined operating hours for all engines will be limited to 7800 hours per year. Two 32,000 gallons storage tanks will be constructed as part of the project. Maximum throughput of No. 2 fuel oil will be 1, 37 9,700 gallons per year. This throughput may be through a single tank or split between the two tanks.

APPLICABLE REGULATIONS:

401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart IIII New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines.

401 KAR 60:005, Sections 2 and 3(1)(q) - incorporates by reference 40 CFR Part 60.110b to 60.117b (Subpart Kb), "Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984".

FOR EMISSION UNITS 01-09:

To preclude 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality, the emission units shall not operate more than 7800 hours per year (12 month rolling total) and the sulfur weight percent shall not exceed 0.05 percent for fuel oil.

Pursuant to 40 CFR 60.4207 (a), beginning October 1, 2007, the permittee shall only use diesel fuel that meets the requirements of 40 CFR 80.510 (a).

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Pursuant to 40 CFR 60.4204 (c)(1), the permittee shall reduce nitrogen oxide emissions by 90 percent or more, or limit the emissions of NO_x in the engine exhaust to 1.6 grams per KW-hour (1.2 g/HP-hour). The permittee may assure compliance with the NO_x emission rate with the formula listed in the permit.

Pursuant to 40 CFR 60.4204 (c)(2), the permittee shall reduce particulate matter emissions by 60 percent or more, or limit the emission of PM in the engine exhaust to 0.15 g/KW-hour (0.11 g/HP-hour). The permittee may assure compliance with the PM emission limitation rate with the formula listed in the permit.

Pursuant to 40 CFR 60.4211 (d)(1) and 40 CFR 60.8, an initial performance test shall be conducted to demonstrate compliance with the NO_x and PM emission standards within 90 days of achieving maximum load but no later than 180 days after installation. The permittee shall use test methods and procedures as specified in 40 CFR 60.4213 to conduct these performance tests.

Pursuant to 40 CFR 60.4211 (d)(2), the permittee shall establish operating parameters to be monitored continuously to ensure the engine continues to meet the emission standards. On or before the date when the initial compliance test is required to be completed, the permittee shall petition the Division for approval of the operating parameters to be monitored and that petition shall include information described in 40 CFR 60.4211 (d)(2). The permittee shall monitor the hours of operation of each generator on a monthly basis. Pursuant to 40 CFR 60.4209(b), to comply with the emission standards in Sec. 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached..

FOR EMISSION UNITS 10-11:

For storage tank, the permittee shall keep records and furnish reports as required below. The permittee shall keep copies of all reports and records required by this condition for at least 2 years. [40 CFR 60.115b]

The permittee shall keep readily accessible records showing the dimension of each affected storage vessel and an analysis showing the capacity of the storage vessel. These records shall be kept for the life of the storage tank. [40 CFR 60.116b (b)]

EMISSIONS AND OPERATING CAPS DESCRIPTIONS:

To preclude the applicability of 401 KAR 51:017, Prevention of Significant Deterioration, source-wide emissions of Carbon Monoxide (CO), are limited to less than 225 tons per year. Sulfur content of the fuel oil shall not exceed 0.05 percent by weight. The units will fire No.2 fuel oil and the total combined operating hours shall not exceed 7800 hours per year. Maximum throughput of fuel oil will not exceed 1,379,700 gallon per year. Additionally, the source shall be limited to 9 tons per year for a single hazardous air pollutant (HAP) and 22.5 for combined HAPs

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MONITORING:

Pursuant to 40 CFR 60.4209 b, if you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in Sec.

60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is reached.

OPERATIONAL FLEXIBILITY:

N/A

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.